



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,373	09/25/2003	David R. Hall	66.0008	2372
26932	7590	04/01/2005		EXAMINER
JEFFREY E. DALY				MAYO III, WILLIAM H
GRANT PRIDECO, L.P.				
400 N. SAM HOUSTON PARKWAY EAST			ART UNIT	PAPER NUMBER
SUITE 900			2831	
HOUSTON, TX 77060				
				DATE MAILED: 04/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/605,373	HALL ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	William H. Mayo III	2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-18 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date April 20, 2004.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement filed April 20, 2004 has been submitted for consideration by the Office. It has been placed in the application file and the information referred to therein has been considered.

### ***Oath/Declaration***

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

The S-signature (i.e. John Smith) doesn't comply with the proper S-signatures required under 37 CFR 1.4(d)(2). Specifically, the proper S-signature acceptable are as follows:  
/John Smith/, / John Smith /, or /John Smith/.

### ***Specification***

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because in line 5, the abstract states the term "comprises", which is improper claim language for the abstract. The applicant should replace the term with --has--. Correction is required. See MPEP § 608.01(b).

### ***Claim Objections***

5. Claim 18 is objected to because of the following informalities: In claim 18, lines 1-2, replace the terms "first conductor" and "second conductor", with the terms --inner conductor--and --outer conductor-- respectively. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3, 5-8, 10-11, and 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Bailey (Pat Num 5,355,720). Bailey discloses a transmission line (Figs 1-8) capable of being utilized with a down-hole tool (Col 1, lines 12-22). Specifically, with respect to claim 1, Bailey discloses a transmission line (Fig 3) comprising a generally tubular outer conductor (20), an inner conductor (12) generally co-axially disposed

within the outer conductor (20), and a dielectric material (16 & 32) disposed intermediate the inner and outer conductors (12 & 20, respectively), wherein the dielectric material (32) is initially loosely fitted relative to at least one of the outer and the inner conductors (20 & 12, i.e. the dielectric material 32 is loosely fitted to the inner conductors), wherein at least one of the outer and the inner conductors (20 & 12, respectively) is further deformed (i.e. drawn or pulled, Col 6, lines 41-45) to provide an interference fit with the dielectric material (16 & 32), wherein independent motion between the outer conductor (20), inner conductor (12), and the dielectric material (16 & 32) are substantially abated during deployment of the downhole tool (Fig 3 illustrates the layers being tightly assembled on each other so that movement between the inner and outer conductor is eliminated). With respect to claim 2, Bailey discloses that the downhole tool consists of sensor for a leak detector system (i.e., sensor sub, Col 1, lines 40-53). With respect to claim 3, Bailey discloses that inner and outer conductors (20 & 12) are made of a copper or aluminum, which inherently has an electrical conductivity of at least 60% of IACS (Cols 3 & 4, lines 35-40 & 17-24 respectively). With respect to claim 5, Bailey discloses that the inner conductor (12) is made of stranded wire (14). With respect to claim 6, Bailey discloses that the dielectric (16 & 32) may comprise a material (16, i.e. extruded FEP), which is a substantially non-porous material (Col 3, lines 42-47). With respect to claim 7, Bailey discloses that the dielectric (16 & 32) may comprise a material (32, polyethylene spacers), which is a substantially porous material (Col 6, lines 23-33). With respect to claim 8, Bailey discloses that the dielectric (32) may comprise a gas (i.e. air between the helically wrapped layers). With

respect to claim 10, Bailey discloses that the dielectric material (32) comprises a gaseous material (i.e. air) associated with the porous material (32). With respect to claim 11, Bailey discloses that the outer conductor (20) has an outer surface, which exhibits a rough texture (i.e. braided surface, Col 4, lines 8-16, Fig 3). With respect to claim 17, Bailey discloses that the outer conductor (20), the dielectric (16 & 32), and the inner conductor (12) are in sufficient contact to withstand gravitational loads of between 100-500 g's (all of the claimed structure of claim 1 is disclosed in Bailey and therefore Bailey exhibits all of the claimed characteristics as the claimed structure). With respect to claim 18, inner conductor (12), the dielectric (16 & 32), and the second conductor (20) are capable of elastic strain of at least about 0.3% (all of the claimed structure of claim 1 is disclosed in Bailey and therefore Bailey exhibits all of the claimed characteristics as the claimed structure).

#### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey (Pat Num 5,355,720) in view of Ono et al (Pub Num 2003/0168240, herein referred to as Ono). Bailey discloses a transmission line (Figs 1-8) capable of being utilized with a down-hole tool (Col 1, lines 12-22), as detailed above with respect to claim 1.

However, Bailey doesn't necessarily disclose the inside surface of the outer conductor being in contact with a material having electrical conductivity of at least 60% IACS (claim 4).

Ono teaches a conventional coaxial cable (Figs 1-4), which is commonly utilized for the transmission of high frequency signals (Page 1, Paragraph 1). Specifically, with respect to claim 4, Ono teaches a coaxial cable (1, Fig 2) comprising an outer conductor (5), wherein the outer conductor (5) has an inside surface that is in contact with a tape layer (4) comprising a metallic material (8) that may have an electrical conductivity of at least 60% IACS (Fig Page 2, Paragraph 26) and is wrapped such that the metallic material (8) is in contact with the inside surface of the outer conductor (5, Page 3, Paragraph 34).

1. With respect to claim 4, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the coaxial cable of Bailey to comprise the outer conductor configuration as taught by Ono because Ono

teaches that such a configuration is known in the art of coaxial cables for the transmission of high frequency signals (Page 1, paragraph 1) and it would appear that Bailey would perform equally well with the modification.

11. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey (Pat Num 5,355,720). Bailey discloses a transmission line (Figs 1-8) capable of being utilized with a down-hole tool (Col 1, lines 12-22), as detailed above with respect to claim 1. Specifically, Bailey discloses that the outer conductor (20), the dielectric (16 & 32), and the inner conductor (12) are assembled coaxially in a tight configuration (Fig 3).

However, Bailey doesn't specifically disclose the interference between the outer conductor, the dielectric, and the inner conductor being a diametric interference of between 0.001-0.005 inches (claim 16).

With respect to claim 16, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transmission line of Bailey to comprise the interference between the outer conductor, the dielectric, and the inner conductor being a diametric interference of between 0.001-0.005 inches, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

12. Claims 9 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey (Pat Num 5,355,720) in view of Applicant Own Admission of Prior Art (herein referred to as AOAPA). Bailey discloses a transmission line (Figs 1-8) capable

of being utilized with a down-hole tool (Col 1, lines 12-22) as detailed above with respect to claim 1.

However, Bailey doesn't specifically disclose the dielectric material comprises porous and/or non-porous segmented beads (claim 9), nor the outer conductor being connected to the downhole tool (claim 12), nor the outer conductor being attached to the downhole tool by a clamp connection or plug connector (claim 13), nor the outer conductor being attached two the downhole tool by threaded connector (claim 14), nor the outer conductor being attached to the downhole tool by a liner disposed within the downhole tool (claim 15).

AOAPA teaches that coaxial transmission line cables are known and preferred to be utilized with down-hole applications seeking to achieve high data rate transmission (see paragraph 10, under the heading Description of Related Art). Specifically, with respect to claim 9, AOAPA teaches a known coaxial cable (Paragraph 9, under the heading Description of Related Art), comprising inner and outer conductors, wherein insulating beads are provided between the inner and outer conductors to overcome the effects of distorted signal propagation. With respect to claims 12-15, AOAPA teaches another known coaxial cable (Paragraph 13, under the heading Description of Related Art) comprising an outer conductor, wherein the outer conductor is attached to the pipe wall of the downhole tool by a plug connector comprising a wall of liner for the purpose of securing the conductor to the pipe wall, wherein the plug connector is a threaded connector and protects the conductor from abrasion and contamination caused by the circulating drilling fluid.

With respect to claim 9, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the coaxial cable of Bailey to comprise the known coaxial cable having a dielectric being in the forms of insulating beads configuration as taught by AOAPA because AOAPA teaches that such a known configuration provides a known coaxial cable (Paragraph 9, under the heading Description of Related Art), wherein insulating beads are provided between the inner and outer conductors to overcome the effects of distorted signal propagation.

With respect to claims 12-15, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the coaxial cable of Bailey to comprise the known coaxial cable termination as taught by AOAPA because AOAPA teaches that such a termination provides a known coaxial cable having secured conductors thereby resulting in protection of the conductor from abrasion and contamination caused by the circulating drilling fluid (Paragraph 13, under the heading Description of Related Art).

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. They are Buluschek (Pat Num 5,946,798), Yagihashi (Pat Num 5,393,929), Fox et al (Pat Num 3,864,507), Ebel (Pat Num 3,734,794), Grossi et al (Pat Num 4,087,781), Ellers et al (Pat Num 4,048,807), Ebel (Pat Num 3,591,704), Kubo (Pat Num 3,962,529), Reynolds (Pat Num 3,773,965), Hunter (Pat Num 1,539,490), Friedrich et al (Pat Num 4,043,031), Eastlund et al (Pat Num 4,716,960), Brorein et al

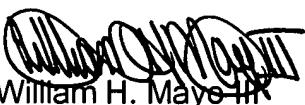
(Pat Num 3,693,250), Olszewski et al (Pat Num 3,985,948), Bertini et al (Pat Num 6,489,554), all of which disclose various coaxial cables.

### ***Communication***

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Mayo III whose telephone number is (571)-272-1978. The examiner can normally be reached on M-F 8:30am-6:00 pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on (571) 272-2800 ext 31. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



William H. Mayo III  
Primary Examiner  
Art Unit 2831